IN THE CLAIMS:

1. (currently amended): A level system for detecting a foam level in a delayed coking drum comprising:

(a) a plurality of linear radiation detectors mounted length wise along the height of the coke drum;

(b) a radiation source mounted on the coke drum opposite and directly across said coke drum from said radiation detectors;

(c) each of said radiation detectors being calibrated to read one hundred per cent level when no radiation is detected.

2. (original): The level system according to claim 1 wherein each of said radiation detectors is spaced apart a nominal distance along the height of said drum.

3. (original): The level system according to claim 1 wherein each of said radiation detectors is placed end to end along the height of said drum.

4. (Previously presented): A method of detecting a foam level in a delayed coking drum comprising:

(a) placing a plurality of linear radiation detectors along the height of said drum;

(b) placing a radiation source on said drum opposite said radiation detectors;

(c) calibrating each of said radiation detectors to read zero per cent level at the radiation count of the detector when only hydrocarbon vapors are present in the drum adjacent to the detectors;

(d) calibrating the output each of said radiation detectors to read one hundred per cent when no radiation is detected;

(e) detecting radiation as a percentage of the height of each radiation detector as radiation is blocked by the foam level rising in the coke drum;

(f) multiplying the percentage reading for each detector by the fraction of height each detector is in relation to the total height of all the detectors to give a product; and

(f) summing all of the resulting products to give a foam level.

5. (currently amended): The method according to claim ~~3~~ 4 wherein the output of each detector is recalibrated after feed is started to read 100 per cent when the radiation count of the next higher detector begins to fall.

6. (original): The method according to claim 4 wherein the output of all except the topmost of the radiation detectors are recalibrated after feed is started to read 100 per cent when the radiation count of the next higher detector begins to fall and output of the topmost detector output is recalibrated based upon a linear interpolation of the lower recalibrations.

7. (currently amended): The method according to claim ~~3~~ 4 wherein the radiation count of each detector is indicated in a distributive control system.

8. (currently amended): The method according to claim ~~3~~ 4 wherein the radiation count of each detector is indicated in a computer.

9. (original): A method of detecting a foam level in a delayed coking drum comprising detecting the boiling mass in the coke drum and accounting for the changing densities of the foam in the drum over the height of the coke drum.

10. (previously presented): The system according to claim 2 wherein each radiation detector is calibrated at zero when the coke drum is filled with hydrocarbon

vapors.

11. (previously presented): The system according to claim 10 wherein each successive radiation detector from the bottom is recalibrated to 100% when it begins to detect a level using the radiation count of the next lower radiation detector at that time.

12. (previously presented): The system according to claim 3 wherein each radiation detector is calibrated at zero when the coke drum is filled with hydrocarbon vapors.

13. (previously presented): The system according to claim 12 wherein each successive radiation detector from the bottom is recalibrated to 100% when it begins to detect a level using the radiation count of the next lower radiation detector at that time.

14. (new) A method for calibrating a plurality of linear radiation detectors which are mounted substantially end to end along the height of a coke drum to measure the level of foam contained in the drum, comprising;

(a) initially calibrating all of said radiation detectors to read zero per cent level at the radiation count of the detector when only hydrocarbon vapors are present in the drum adjacent to the detectors;

(b) initially calibrating the output each of said radiation detectors to read one hundred per cent when no radiation is detected;

(c) recalibrating the output of each successively higher detector except the topmost after feed is started to read 100 per cent at the raw radiation count when the

radiation count of the next higher detector begins to fall; and

(d) recalibrating the topmost detector to read 100 per cent based upon linear interpolation of the lower recalibrations.